NUS CORPORATION
889 WEST VALLEY ROAD
WAYNE, PENNSYLVANIA 19087
215-687-9510

June 1, 1987
C-585-6-7-1
68-01-7346

Mr. William Hagel
U.S. Environmental Protection Agency
841 Chestnut Building
Ninth and Chestnut Streets
Philadelphia, PA 19107

Subject: Drilling Contractor Bid Solicitation
TDD No. F3-8705-11
Matthews Electroplating
Salem, Virginia

Dear Mr. Hagel:

NUS FIT 3 has planned to hire, through subcontract, the services of a drilling contractor to perform borings and aid in the collection of soil samples at the subject site. This sampling effort is outlined in our letter, dated May 13, 1987, and further detail is presented in the attached technical specifications of the bid solicitation package. The location and description of the borings at the subject site is summarized as follows:

- Two borings will be placed at third intervals along the pathway between the plating building and the sink hole. The depth of these borings will be 20 feet or to the depth of auger refusal.
- Two borings will be placed within the area of the sink hole to a depth of 30 feet or to the depth of auger refusal.
- Two borings will be placed in the area northeast of the original location of the bumper preparation building to a depth of 20 feet or to the depth of auger refusal.
- One boring will be placed in an "uncontaminated" area of the site to a depth of 10 feet or the depth of auger refusal. This boring will provide control data and will most likely be located in the eastern corner of the site.

Split spoon samples will be taken at 10-foot intervals, beginning at existing grade (0 feet), in all borings.

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NUS has estimated that subcontracting costs for the drilling contractor should not exceed $11,000. Please review the technical specifications attached and sign below and return with your concurrence to this plan. If you have any questions, please feel free to contact either William Wentworth or me.

Respectfully,

Garth Glenn
Regional Operations
Manager, FIT 3

William Wentworth
Assistant Manager

Audrey H. Fleisher
Quality Assurance

GG/skt

Attachments

Approved by: _____

Date: _____

Amendments: _____

_____

_____

Velocity + Aquifer Thickness for Lateral flow calculations

Homogenize Soil sample for each Sample station and split for different analysis

Soil Testing needed for Chromium Modeling:

- Bulk density (method by Blume 1965 in CA Black: Methods of Soil Analysis)
- Particle density (ASTM Method)
- Saturated Hydraulic Conductivity (Method by Klute A 1965 in Methods in Soil Anal. in CA Black ed.) (Fielding Head)
- pH (Diagnosis + Improvement of Saline and alkali Soils Agricultural Handbook CO USDA)

~~- Distribution coefficient (Method Hamaker + Thompson 1972)~~

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ATTACHMENT III

TECHNICAL SPECIFICATIONS FOR THE

DRILLING OF BOREHOLES AT THE

MATTHEWS ELECTROPLATING SITE

SALEM, VIRGINIA

TDD NO. F3-8705-11

SCOPE OF WORK

Time is of the essence in the performance of this subcontract; therefore, all action taken by NUS and the subcontractor(s) shall be taken to that end. All work shall be performed in an expeditious and professional manner. Particularly critical to this project is that all samples be collected by late afternoon of Wednesday, July 1, 1987.

General: The project consists of augering with split spoon sampling of boreholes at the Matthews Electroplating site. Seven boreholes will be completed.

Site Location: The project site is located on Route 796 near Virginia State Route 460 and Interstate 81 in Roanoke County, approximately two miles west of Salem, Virginia(refer to figure 1 for site location).

Site Activities: The activities for this project will include the augering of an estimated seven boreholes and their subsequent restoration. All boreholes will be advanced using 8-inch hollow stem continuous flight augers with undisturbed soil sampling followed by split spoon sampling at 10-foot intervals beginning at surface and ending at auger refusal. Under the direction of NUS, completed boreholes will be grouted and/or backfilled to the surface by the subcontractor. All on-site activities will be performed under the direct supervision of NUS. A bedrock contour map is included as appendix 5.

Sample Locations: The anticipated locations of the borings are described as follows and are illustrated on the attached sample location map (figure 2).

- Two borings (A and B) will be placed at third intervals along the pathway between the plating building and the sink hole. The depth of these borings will be 20 feet or to the depth of auger refusal.
- Two borings (C and D) will be placed within the area of the sink hole to a depth of 30 feet or to the depth of auger refusal.
- Two borings (E and F) will be placed in the area northeast of the original location of the bumper preparation building to a depth of 20 feet or to the depth of auger refusal.
- One boring (G) will be placed in an "uncontaminated" area of the site to a depth of 10 feet or the depth of auger refusal. This boring will provide control data and will most likely be located in the eastern corner of the site.

Standards: All equipment, tools, and materials shall be of good quality and proper working order. All field operations shall be accomplished in such manner to the full and complete satisfaction of NUS. All references to codes, standards, or material specifications shall be to the latest revision, including all effective supplements or addenda thereto as of the date of invitation to bid. The following reference standards provide technical descriptions of the methods, procedures, materials, and equipment to be used:

ASTM Designation: D1586 "Standard Method for Penetration Test and Split-Barrel Sampling of Soils"
D1587 "Practice for Thin Wall Tube Sampling of Soils"

Borehole Restoration: The boreholes shall be backfilled and grouted to within ground surface, as per instructions by NUS, with a mixture of bentonite clay/grout. All borehole restoration must be completed by late afternoon of July 1, 1987. The consistency of this mixture will be subject to the approval of the NUS field representative. The remaining borehole space will be filled with drill cuttings and reseeded.

Borehole Security: In the event that an incomplete or ungrouted borehole must be left unattended, the driller must secure the hole from direct entry. This may be accomplished by covering the borehole with planking supported in place by a drum or cinder block. The driller may also choose to place a temporary cap on the hole. In all cases, the security of the borehole must be to the full satisfaction of NUS.

Drilling Records: The subcontractor shall so conduct his work as to accurately determine the nature of each stratum encountered. The following data shall be recorded on the driller's log for each borehole and shall be provided to the NUS field representative at the end of each boring:

a. Borehole number.
b. The date borehole was started and the date borehole was completed.
c. Driller's and helpers' names.
d. Type of drill rig used.
e. Weather conditions.
f Any location or other identification information as supplied to the subcontractor by NUS.
g. Diameters and types of auger used.
h. Sample intervals.
i. Final depth of the borehole.
j. Overburden shall be described and recorded (type, color, and moisture).
k. Rock shall be described and recorded in accordance with the following descriptions:
   (1) Shale, sandstone, slate, limestone, etc.
   (2) Hardness - broken weathered, soft, medium, hard, very hard, etc.
l. It will also be noted on the driller's log if respiratory protective equipment was required for the boring and, if so, what type(s) of protection was required. If any accidents or injuries occurred during the drilling of the borehole, the date, time, nature of accident or injury, and personnel involved will also be so noted on the driller's log.

The driller's log should be kept up to date and is subject to review by the NUS field representative at any time during the operation. Within 10 working days after the completion of all work, the subcontractor shall submit to NUS, at his business address, 1 typed original boring log and 2 copies. The information contained on these logs shall be the same as explained in the above section.

Safety: The NUS field representative will make the final decisions on all safety procedures as described in the general guidelines. All subcontract personnel shall be required to attend a brief lecture on site-specific safety, to be given just prior to the commencement of work as described in the general guidelines. Further discussion of on-site safety procedures and applicable Occupational Health and Safety Administration (OSHA) regulations will follow in the Health and Safety section of this document.

General Guidelines

The following guidelines will assist you in preparing your bid.

Contractor's Field Representative: Throughout the duration of this subcontract, NUS will have on site various technical representatives. One of said personnel will be designated by NUS as the NUS field representative. The NUS field representative will have full and complete authority over any and all operations conducted in the field on this project. The opinions and interpretations of the NUS field representative pertaining to Specifications shall be the same as NUS Corporation and shall be final and binding on all parties.

Subcontractor's Superintendent: The subcontractor shall assign a capable, responsible representative to supervise the subcontractor's workmen at all times. This superintendent shall carry out the directions of the NUS field representative and will be the only individual authorized to discuss disputes with the NUS field representative. When the subcontractor's superintendent must leave the site of work, a foreman or driller shall be accorded full responsibility of superintendence on the site.

Specifications: The attached are defined and described as Specifications. It is understood and agreed to by all parties that everything herein contained is hereby made a part of the subcontract.

Changes in Specifications: NUS reserves the right to make any changes in the Specifications. If such changes cause a material increase or decrease in the cost of performing the work or the time of performance, and written notice thereof is given to either party within 10 days after the giving of such notice of change, an equitable adjustment in the subcontract price and/or time of performance shall be made.

Subcontract: These Specifications will cover the furnishing of all materials, equipment, tools, labor, and work necessary for drilling of boreholes.

Intent of Specifications: Any questions as to the intent or meaning of these Technical Specifications shall be referred to Edward Smith at NUS Corporation, 999 West Valley Road, Wayne, Pennsylvania 19087, (215) 687-9510, whose interpretation and decision shall be final and binding on all parties. Any questions concerning contract procedures should be addressed to Mr. Norman Howard at NUS Corporation, 1300 North 17th Street, Suite 1320, Arlington, Virginia, 22209, (703) 522-8802.

Points not Covered by Specifications: Wherever any feature of the work is not fully set forth in these Specifications, it must be understood that the same shall be governed by the rules of the best prevailing practice, as determined by NUS, for that class of work.

Extra Work: The subcontractor shall not be entitled to any additional compensation for the performance of any work not required under this subcontract unless, prior to the performance of such work, he shall have received written authorization from NUS to perform such work.

Inspections: Ample facilities shall be furnished at all times to NUS and its representatives for inspection of the work. If any imperfect work is performed at any time, the defects therein shall be remedied by the subcontractor, at his expense, to the full satisfaction of the NUS field representative. Failure of the subcontractor to do so shall be cause for stopping the work.

Transportation Equipment and Materials: The subcontractor shall supply and furnish, at the location where the work is to be performed, all transportation, labor, tools, machinery, and materials and bear all items of expense necessary for executing and completing in the best manner the work called for herein. Any equipment, materials, or services not specifically described in the Specifications but which may be fairly implied as required or necessary to complete the work shall be within the scope of the subcontractor's work.

Manner of Prosecuting Work: The work shall be prosecuted in a manner best calculated to promote rapidity in execution, to produce the greatest accuracy in results, and to secure safety of life and the protection of property. Work shall be executed to the full satisfaction of the NUS field representative and in accordance with his directions.

Who ?

Permits, Etc., Rules and Regulations: All permits, licenses, certificates, etc., of whatever nature, necessary for the prosecution of this work, shall be obtained by the subcontractor at his expense, with the exception of local well drilling permits, which will be secured by EPA. The subcontractor shall comply strictly with all federal, state, and local laws, ordinances, rules, and regulations relating to his operation in the performance of the work hereunder.

Protection of Existing Structures, Etc.: The subcontractor shall protect all existing structures, walks, pipelines, and the like during the progress of the work. Trees, shrubbery, and other vegetation which do not require removal or clearing to gain access to a drilling location shall also be protected from damage by the subcontractor. The subcontractor shall also protect any existing boreholes or monitoring wells which may be located on site.

Pipes, Underground Cables, Underground Structures, Etc.: It shall be the sole responsibility of the subcontractor to contact utility companies before commencing any field operations to verify the location of any and all pipes, underground cables, and underground structures. The location of drilling shall be altered, if necessary, to avoid any damage to existing utilities. During the progress of work, the subcontractor shall cooperate with the owners of utilities and permit their representatives access to the work area to determine if their utilities are being endangered in any way. However, access to the work area will be coordinated through the NUS field representative.

Access to Property: Access to property will be arranged by NUS and EPA prior to the start of work. All subcontractor's personnel must coordinate entry onto the site with NUS and must be accompanied at all times by NUS personnel.

Performance of Work: The subcontractor shall perform his work in such a manner as not to unreasonably interfere or impede the work of others, on or adjacent to the site. NUS reserves the right to direct the subcontractor to schedule the order of performance of his work in such a manner as not to unreasonably interfere with the work of others.

Public Interest: NUS will implement in dealing with the press and any other public interest groups. Under no circumstances will any information about this subcontract, NUS, or EPA be passed by the subcontractor, or the subcontractor's employees, to any other parties. Photographs may not be taken by the subcontractor of any part of the job site.

Scope: The subcontractor shall supply all labor, material, and necessary equipment for borehole drilling as per the Specification for the subject project. The equipment described shall be considered satisfactory for use in drilling and shall be subject to prior approval by NUS. All equipment and tools shall be modern and in a condition of good repair. Approval by NUS of the equipment for use shall not be construed as justification for measurement and payment for borings abandoned or lost before reaching the depth specified by NUS, unless NUS's approval or cause thereof. Each drilling machine shall be fully equipped and tooled for operation as an independent unit. Each drilling machine shall be manned to permit an efficient operation and to insure a comprehensive record of the boring and sampling operations. Faulty equipment or methods shall be corrected immediately by the subcontractor. Failure of the subcontractor to correct faulty equipment or methods shall be cause for stopping the work.

The subcontractor's equipment, when not in use, shall be stored where directed by the property owner or the NUS field representative. The security of such equipment shall be the subcontractor's responsibility.

During the progress of the work, the NUS field representative will provide the subcontractor suitable points, lines, marks, locations, and elevations necessary to enable the subcontractor to perform the work.

Abandoned Boreholes: No payment will be made for any borehole that has been abandoned by the subcontractor before reaching the required depth, unless approved by the NUS field representative. Any borehole abandoned by the subcontractor shall be backfilled (with a bentonite seal if necessary), at his expense, to the full satisfaction of the NUS field representative.

Depth of Boreholes: Boreholes shall be carried only to the depths specified by the NUS field representative.

Additional Boreholes: NUS shall have the right to order additional boreholes which shall be made and paid for in accordance with this subcontract and these specifications.

Location of Boreholes: All boreholes will be located and marked in the field prior to commencement of work. No deviation from the locations will be permitted except where ordered or approved by the NUS field representative.

Accessibility: Every attempt to determine site field conditions that may affect site accessibility has been made by NUS. However, failure to visit the site by the bidder prior to start of work will not entitle the subcontractor to any additional compensation due to existing site conditions.

Clearing: The subcontractor shall obtain permission from the property owner(s) prior to any clearing of trees, shrubs, other vegetation, and obstructions in order to gain access to a drilling location. Said clearing is considered incidental to the work described herein and no additional compensation will be due the subcontractor in these instances. Such clearing shall be kept to a minimum in order to maintain the natural vegetative growth as much as possible. Cleared trees must be replaced with like species by the subcontractor.

Additional Equipment: Where site conditions warrant, the subcontractor shall provide, at his expense, any additional equipment such as bulldozers, backhoe, loaders, and materials that may be necessitated to allow access by the drilling equipment to a proposed borehole location. If access roads are required to gain entry to a drilling location, excavation shall be kept to a minimum.

Equipment Decontamination: When any work is performed in potentially contaminated areas, health, safety, and cross-contamination are of the utmost importance. Therefore, all drilling equipment must be decontaminated with decontamination solution(s) (as approved by NUS) and rinsed with drinking quality water prior to entering and before leaving the site. Personnel decontamination procedures will be explained later in the Specifications.

Prior to moving any equipment onto the first drilling location, between subsequent locations and before leaving the site, or at any other time deemed necessary by the NUS field representative, the entire drill rig, to also include samples, drill rods, weights, augers, and bits, etc., shall be decontaminated by the subcontractor's drilling personnel to the full satisfaction of the NUS field representative. This decontamination process will consist, at minimum requirements, of high pressure hot water cleaning of the above-mentioned drilling equipment. The subcontractor shall provide drinking quality water in sufficient quantities to carry out decontamination procedures as described herein as well as to carry out, on site, personnel decontamination or any other decontamination determined necessary by the NUS field representative. The subcontractor shall also provide a mobile hot water high pressure washer (a high pressure portable steam jenny is suggested), tubs or other receptacles (of sufficient size) in which the tools, weights, augers, etc. can be placed during the various stages of decontamination. If spent materials or wastes generated from this decontamination process are deemed by the NUS field representative to be suspected/known hazardous wastes, said wastes must be collected and containerized in suitable 55-gallon drums for future waste disposal. Said 55-gallon drums shall be decontaminated in the same manner as described above. Drum requirements and waste disposal will be explained later in the Specifications.

low volum

How can we determine decon. waste "spent"? Is There temp storage

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Number of Drilling Crew Members: The subcontractor shall have on site at all times ample competent and trained personnel to perform all the requirements of these Specifications.

Drilling Fluid: The boreholes will be advanced using hollow stem augers and air drilling techniques. The air system shall include an in-line filter. This filter shall be replaced frequently. The purpose of this filter is to essentially remove all oil residue from the air compressor. The technique used for advancing the borehole shall be so explained on the driller's log (water or air).

Lean Concrete/Natural Bentonite Grout: A lean concrete/natural bentonite grout shall be placed by tremie, if necessary, where directed by the NUS field representative. The lean concrete/natural bentonite shall be combined in a proportion of approximately 12 pounds of bentonite per bag (94 pounds) of Type I Portland cement. The consistency of the grout will be approved by the NUS field representative prior to placement.

Contractor's Safety Plan: Prior to the commencement of any field activities, NUS will develop a Safety Plan for the subject project. The subcontractor shall strictly comply with all articles of this Safety Plan. Failure to comply with this Safety Plan by the subcontractor or the subcontractor's employees shall be cause for stopping the work.

Accidents or Injuries: Any accidents or injuries occurring during the duration of this subcontract, involving any subcontractor's employees employed for work on this project, shall immediately be reported to the NUS field representative.

Health and Safety: Due to the potentially hazardous nature of the materials which may be or may have been stored or disposed on site, all personnel employed or retained for services by the subcontractor for this project may at times be required to wear personal protective clothing and/or respiratory protective equipment while drilling or working on and off site. The determination for type of protective clothing needed and the need and type of respiratory protective equipment will be based in part on air-borne health hazards, which will be constantly monitored by the NUS field personnel. The four different levels of protection which may be required are listed below:

Level A Protection is the highest level of both respiratory and skin protection available.

Protective equipment required:

- o Open circuit, positive pressure-demand self-contained breathing apparatus (SCBA)
- o Totally encapsulating butyl rubber suit
- o Gloves, inner (surgical type)
- o Gloves, outer, chemical protective
- o Boots, chemical protective, steel toe and shank
- o Booties, chemical protective

Level B Protection is the second highest level of protection.

Protective equipment required:

- o Open circuit, positive pressure-demand self-contained breathing apparatus (SCBA)
- o Chemical-protective coveralls and a butyl rubber apron
- o Gloves, inner (surgical type)
- o Gloves, outer, chemical protective
- o Boots, chemical protective, steel toe and shank
- o Booties, chemical protective

Level C Protection is used when a nominal level of protection is necessitated.

Protective equipment required:

- o Full facepiece cartridge-type air-purifying respirator
- o Chemical-protective coveralls
- o Gloves, inner (surgical type)
- o Gloves, outer, chemical protective
- o Boots, chemical protective, steel toe and shank
- o Booties, chemical protective

Level D Protection is the minimum protection necessary.

Protective equipment required:

- o Cotton coveralls
- o Safety boots/shoes
- o Safety glasses
- o Hard hat with optional faceshield
- o Air purifying respirators (readily available)

NUS will develop a site-specific Health and Safety Plan. The subcontractor must, as a minimum, comply with the requirements of the Health and Safety Plan. A Health and Safety Plan including detailed information on suspected contaminants and emergency procedures will be reviewed.

Failure of the Subcontractor to adhere to the Health and Safety Plan or to comply with health and safety instructions from the NUS representative will be grounds for NUS to discontinue work activity, at the Subcontractor's expense. NUS reserves the right to stop work and/or terminate the subcontract for Health and Safety reasons.

NUS will provide health and safety training to the subcontractor's personnel working on the site. There is no charge for this training. This site-specific training will be provided prior to on-site work.

If at any time during the duration of this subcontract respiratory protective equipment is required, NUS will provide ultra twins or self-contained breathing apparatus (SCBA) to the subcontractor's employees. Respiratory protective equipment cannot and will not be used by individuals with long sideburns or beards or by individuals who wear standard eyeglasses or contact lenses in the performance of their daily work routine. Special eyeglasses that can be worn with the respiratory equipment are available through respiratory protection device manufacturers and can be purchased by the subcontractor at his expense. Other protective equipment which may be required and shall be furnished by the subcontractor includes chemically resistant coveralls (Tyvek), rubber overboots, steel-toed safety shoes, hard hats, safety goggles, surgical gloves, and butyl rubber gloves (neoprene gloves may be substituted).

Any field activities which may require the subcontractor's personnel to use respiratory protective equipment (Level A or Level B equipment only) shall be paid for as a separate bid item. No additional compensation will be due subcontractor's for Level C or D protection.

Any time respiratory protective equipment is being used it shall be the joint responsibility of the NUS field representative and the subcontractor's superintendent to monitor the individuals who are wearing respiratory protective equipment. The subcontractor is informed that the wearing of personal protective clothing and respiratory equipment places far more physical stress on an individual than would be normally experienced in normal working conditions. Therefore, the subcontractor's field personnel shall be individuals in good physical condition and without prior serious health problems, which may be manifested during the performance of this work. The NUS field representative reserves the right, at any time, to request replacement of any individual employed or retained by the subcontractor who, in the NUS field representative's opinion, cannot function under these stressed working conditions. No additional compensation shall be due the subcontractor for delays or expenses incurred by the subcontractor for additional subcontractor personnel training as a result of such request.

No smoking, eating, drinking, or use of drugs will be permitted while working on site.

All personnel involved in site activities, or who may be required to wear respiratory protection, shall undergo a baseline medical examination at the expense of the subcontractor. Contents of the examination must be determined by the subcontractor's medical physician consultants. The examination must include an OSHA-type evaluation of the worker's ability to use respiratory protective equipment. Personnel who have undergone the medical examination and analysis within the past year will not need to be re-examined. A completed form (Form 2, appendix 1) is required prior to the start of work from the subcontractor's medical consultant to the NUS project manager certifying the medical fitness of each person to perform his duties and to wear respirators. The subcontractor's medical consultant, in conjunction with the NUS Site Health and Safety Officer, will determine the need for medical care in the case of field exposure or illness.

Health and Safety Training: These health, safety, and training specifications are designed to establish general procedures and practices for NUS and subcontractor personnel involved in drilling.

Purpose and Scope: NUS has established a comprehensive health, safety, and training program for all field activities, particularly those which have the potential for chemical exposures. The program is intended to provide adequate procedures, protective gear, monitoring, and follow-up to protect the health of NUS, subcontractor, and client, as well as the public near our work sites.

This program is driven by the requirement to comply with Federal and State OSHA regulations, the need to minimize the risk of adverse health effects from expousre to work hazards, and the savings inherent in safe work activities. In this regard, all standards, training requirements, medical monitoring, and employee protection requirements for workers engaged in hazardous waste operations, as proposed under 29 CFR 1920/51FR4564, December 19, 1986, must be met (see appendix 2).

A Site Health and Safety Officer (SHO) is assigned to evaluate site hazards, develop the health, safety, and training requirements, and provide on-site activities as needed to provide for the safety and health of all involved. This includes modifying or halting all activities as needed to make sure safety plans and other requirements are fulfilled.

Prior to the commencement of any field activities, the subcontractor will be advised of the NUS Health and Safety Plan for the subject project. The subcontractor shall strictly comply with all articles of the Health and Safety Plan. Failure to comply with this plan by the subcontractor or the subcontractor's employees shall be cause for stopping the work at the expense of the subcontractor.

During the performance of work under this subcontract, the subcontractor shall, at a minimum, satisfy all Federal, state, and local statutes, regulations, ordinances, etc., regarding health and safety. The subcontractor is responsible for insuring that his employees satisfy all health and safety requirements as well. The subcontractor shall also document that personnel assigned to the project meet all applicable OSHA training and medical monitoring requirements as provided in 19 CFR 1910 Supplementary Information - Summary and Explanation of the Standard-Paragraphs (e) Training and (f) Medical Surveillance as follows:

Number of hours that each employee proposed for this job has worked at hazardous waste sites, a list of the sites, and any training records and certificates. These data can be furnished by completing the attached form 3: Subcontractor documentation of OSHA Training and Medical Monitoring Requirements (see appendix 3).

Only personnel currently capable of meeting these requirements will be eligible for project work. As noted in the regulations, appropriate training and medical monitoring records must be kept to assist in future employee evaluations. Copies of records insuring compliance to the regulation shall be submitted to NUS with bidding documents at the time the response to the request for quotation is submitted. Beyond the minimum requirement, the subcontractor shall comply with NUS Health and Safety Plans particular to the site.

Quality Assurance: NUS has established a comprehensive quality assurance program to control activities related to its project for EPA. The subcontractor shall comply with the applicable elements of that program and shall develop procedures and practices to implement the elements imposed. In addition, NUS requires that the subcontractor complete a Quality Assurance Statement of Understanding for the successful performance of this subcontract. This form, included in appendix 4, must be completed by the subcontractor and forwarded to:

Audrey Fleisher
NUS Corporation
999 West Valley Road
Wayne, PA 19087

Applicable elements to the Quality Assurance program include the following:

- The subcontractor shall submit their quality assurance program to NUS for approval. Those subcontractors whose program does not gain approval or who do not have a quality assurance program shall be subject to the applicable sections of the NUS Superfund quality assurance program.

- Any lower-tier subcontractors shall also be required by the subcontractor to adhere to all NUS Superfund quality assurance and security plans and requirements referred to under this agreement. The subcontractor shall contact NUS for resolution of any exceptions taken to the quality assurance and/or security plans prior to execution of the subcontract.

- Subcontractor personnel involved in project activities shall be trained in the procedures and methods applicable to their work. Training shall be documented.

- The subcontractor shall exert necessary controls to insure that the services or products to be procured meet the appropriate quality assurance requirements and shall report any changes, defects, or noncompliances to the NUS regional subcontract coordinator and/or on-site field representative.

- Right of access to facilities, processes, and records shall be granted to NUS so that NUS can monitor subcontractor work and conduct surveillances and/or audits as deemed necessary. Subcontractors whose work does not meet the technical, cost, and quality specification in a timely manner will be issued a nonconformance to contractual requirements. Failure to rectify quality assurance deficiencies to the satisfaction of NUS may result in termination of the subcontract.

- The subcontractor will correct at its own expense any deficiencies found during these audits and/or surveillances. The subcontractor will designate an individual or organization responsible for monitoring quality, interfacing with the NUS quality assurance representative, and resolving matters relating to quality. A form (attachment D) has been provided to identify the person(s) responsible for these functions. The form also provides a Statement of Understanding to be signed by the subcontractor indicating understanding of the agreement to the quality assurance provisions of this contract.

- Final review of activities performed under the subcontract shall be the responsibility of the appropriate NUS personnel.

Personnel Decontamination: NUS shall be responsible for all personnel decontamination procedures. NUS will supply all the necessary detergents and solutions necessary for the decontamination procedures. The subcontractor shall supply, in sufficient quantities, drinking quality water for these procedures. All personnel entering the site and leaving the site are required to pass through decontamination as determined necessary by the NUS field representative.

Waste Collection, Containerization, and Disposal: Any drilling spoils/cuttings, spent decontamination water, or solutions considered by the NUS field representative to be suspected or known hazardous wastes cannot and will not be discharged to the environment.

It shall be the responsibility of the subcontractor to collect, containerize, and store all those materials generated in connection with the work under these Specifications and deemed potentially hazardous by NUS. Those waste materials deemed by the NUS field representative not to be suspected/known hazardous wastes need not be collected and containerized. These nonhazardous wastes may, with the property owner's permission, be disposed on site by the subcontractor. Potentially hazardous wastes shall be drummed and segregated according to liquid, sludge, or solid phases. These drums shall be clearly and permanently labeled as per instructions from the NUS field representative.

with the permission of EPA/NUS representative

The subcontractor shall provide, in sufficient quantities, 55-gallon steel drum containers for this waste material. These drums shall meet the U.S. Department of Transportation (DOT) requirements for hazardous substances.

Off-site waste removal, hauling, and disposal will be the responsibility of the subcontractor.

The subcontractor will not have to assume the responsibility or the role of a hazardous waste generator. EPA will assume the responsibility as a RCRA generator and shall complete the necessary manifests, waste analyses, and records required as a generator.

Cleaning Up: Upon completion of all work described in these Specifications, the subcontractor shall remove from the site all equipment brought by him to the site. The subcontractor shall also remove from the site all containers, drums, tanks, debris, and unused materials and restore the site as nearly as practicable to its condition prior to commencement of the work provided for herein. All walks, drives, utilities, structures, or other property damage due to the subcontractor's negligence shall be restored at his expense to as nearly as possible their original conditions. All clean-up operations shall be completed to the full satisfaction of the NUS field representative.

Delay Time: Time is of the essence in the performance of this subcontract and all actions taken by NUS and the subcontractor shall be taken to that end. However, any delays in excess of 30 minutes per instance which are caused directly by NUS or EPA shall be reimbursed to the subcontractor. Both the NUS field representative and the subcontractor's superintendent will jointly record and verify all such occurrences and the time involved in excess of 30 minutes per instance. Upon completion of work, an agreement shall be reached between the NUS field representative and the subcontractor's superintendent as to the accumulated total number of delay hours and fraction thereof. Reimbursement will be based on an hourly rate and shall be a separate bid item.

Delay time does not include delays that are the result of adverse weather conditions, difficult mobilization or demobilization, breakdown of subcontractor's equipment, difficulty in moving to boring locations, or untimely arrival of materials, equipment, labor, tools, etc. necessary to satisfactorily complete the work in accordance with the Specifications and to the satisfaction of NUS. No payment will be due the subcontractor for shutdowns caused by the subcontractor or negligence on the part of an employee of the subcontractor or the temporary shutdown of work by the NUS field representative due to unsatisfactory, unsafe, or negligent performance of the subcontractor or any personnel employed by the subcontractor. No payment will be due to subcontractor for delays that are caused by the use and wearing of respiratory protective equipment or the decontamination of equipment.

Domm
Bulk + Particle Test
Saturated Conduction } Every sample

TCLP = test
for every
except cover
material

pH = all samples

[Internal flow velocity
= no mw

000158